

Case study: Independent Verification and Validation (IV&V)

The Taiwan High Speed Rail Project was one of the largest transportation infrastructure development projects in the world from 2000 to 2006. The High Speed Rail (HSR) was completed in late 2006 and links the two major cities of Taipei and Kaohsiung. These lie at opposite ends of the island of Taiwan with most of the other cities and areas of industry strung between them.

Client

Taiwan High Speed Rail Corporation (THSRC)

Business challenge

The project's objectives were to relieve the existing overloaded transportation links and to stimulate economic development in this western corridor of Taiwan, where three quarters of the population lives.

The concept of IV&V was introduced by the government of Taiwan, Republic of China, for the HSR project. A construction and operation agreement required THSRC to engage an independent verification and validation (IV&V) institution. Lloyd's Register was awarded the IV&V services contract in July 2000, with AEA Technology Rail and Tony Gee and Partners as subcontractors providing additional rail and civil engineering expertise. The Lloyd's Register Project Team (LRPT) was set up to perform the work in Taiwan, with people drawn from the three organisations. The IV&V services are performed as a high-level independent monitoring role. Other parties supplied independent checking engineer functions and THSRC also had a checking function.

The contract with THSRC required Lloyd's Register to deliver an IV&V certificate for the railway, supported by four final reports covering safety, quality, functionality and RAM.

How we helped

LRPT followed a programme of IV&V assessments covering the verification of specification, design, manufacture, construction and installation in each of the main sectors of the project in order to build confidence for the final reporting and certification. LRPT also carried out assessments of the validation during test, commissioning and trial running of the integrated systems, and the verification and validation of the operating organisation and procedures.

Successful outcome

LRPT provided reports on its assessments and the resulting findings to THSRC and the government of Taiwan, Republic of China. On completion, LRPT provided a certificate for the railway, supported by four final reports covering safety, quality, functionality and RAM.

Trains commenced running end 2006, with an eventual capacity of 300,000 passengers per day when the railway reaches full operation. Journey times for the fastest trains, along the 345 km of double track main line, are around 90 minutes. Initially, eight stations were opened, including six new ones. Taiwan has developed rapidly into an industrial state over relatively few decades. The HSR project is seen as a vital aid to further economic development.



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